



CASE PP/1-22766/A/CGC 2128

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Deborah A. Pinori
Type or print name

Signature

October 3, 2006
Date

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF

NIKOLAS KAPRINIDIS ET AL

APPLICATION NO: 10/675,154

FILED: SEPTEMBER 30, 2003

FOR: FLAME RETARDANT POLYMERIC
ELECTRICAL PARTS

Group Art Unit: 1714

Examiner:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL LETTER

Sir:

Enclosed herewith are three copies of the Appeal Brief in the above-identified application.

- ☒ Please charge Deposit Account No. 03-1935 in the amount of \$500.00 for payment of the fee. Two additional copies of this paper are here enclosed. The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment, to Account No. 03-1935.

Respectfully submitted,

Tyler A. Stevenson
Agent for Applicants
Reg. No. 46,388

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540 White Plains Road
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10/3/2006



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Signature

10/3/06
Date

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF

NIKOLAS KAPRINIDIS ET AL

APPLICATION NO: 10/675,154

FILED: September 30, 2003

FOR: FLAME RETARDANT POLYMERIC

ELECTRICAL PARTS

Group Art Unit: 1714

Examiner: **Kriellion A. Sanders**

Confirmation No. 5597

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

This appeal is from the Final Rejection of claims 1, 4, 5, 10, 11, 15 and 18-25 of the Office Action dated May 5, 2006.

The Notice of Appeal was timely mailed to the U.S. Patent and Trademark Office by first class mail with a Certificate of Mailing on August 3, 2006. The return receipt postcard accompanying the Notice of Appeal was date stamped in the PTO mail room August 7, 2006, making this Brief due on October 7, 2006. This Brief is timely filed and no extension of time is required.

The Commissioner is hereby authorized to charge any necessary fee or credit any overpayment to Deposit Account No. 03-1935.

10/10/2006 AWONDAF1 00000079 031935 10675154

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(1) Real Party of Interest

The real party of interest, by virtue of an assignment recorded in the U.S. Patent and Trademark Office on March 19, 2004, reel/frame 015106/0406, is:

Ciba Specialty Chemicals Corp.
P.O. Box 2005
540 White Plains Road
Tarrytown, New York 10591

(2) Related Appeals and Interferences

To the knowledge of the undersigned, there are no related appeals or interferences.

(3) Status of the Claims

Claims 1, 4, 5, 10, 11, 15 and 18-25 are pending and are under consideration.

Claim 1 is the only independent claim.

There are no allowed claims.

Claims 1, 4, 5, 10, 11, 15 and 18-25 are present in an attached appendix with status identifiers.

(4) Status of the Amendments

A Request for Continued Examination was filed April 11, 2006, in which it was requested that the Amendment After Final filed March 9, 2006 be entered.

Said Amendment After Final brings up to date the status of the claims.

(5) Summary of the Claimed Subject Matter

Claim 1 is independent.

Claim 1 is aimed at a flame retardant polyolefin electrical part composition that comprises (a) a polyolefin resin and (b) an effective flame retarding amount of a synergistic mixture of (i) at least one sterically hindered alkoxyamine stabilizer and (ii) at least one brominated hydrocarbyl phosphate or phosphonate flame retardant.

The weight ratio of component (i) to component (ii) is from about 1:14 to about 1:50. Component (b) is present from about 8% to about 17% by weight, based on the weight of component (a). Support for the weight ratio of (i) to (ii) is from Examples 1 and 2 on page 56 and from the second to last paragraph of page 39 of the specification. Support for the weight level of component (b) is from original claim 17.

The polyolefin resin is taught on pages 32 and 33 of the disclosure.

The sterically hindered alkoxyamine stabilizers are known in the art as disclosed on the bottom of page 3 of the disclosure. The present sterically hindered alkoxyamine stabilizers are limited to methoxy-, propoxy- and cyclohexyloxy-amines. Note in claim 1 that E is -O-methyl, -O-propyl or -O-cyclohexyl. Support is found in the last full paragraph of page 4 of the specification.

The brominated hydrocarbyl phosphate or phosphonate flame retardant is taught on the second full paragraph of page 32 of the disclosure.

The present formulations pass for example the UL 94 flammability test, outlined in the paragraph bridging pages 55 and 56 of the disclosure.

Claim 4 is aimed at where the hindered alkoxyamines are selected from two specific cyclohexyloxy hindered amines and a propoxy hindered amine.

Claim 5 is focused on where the hindered alkoxyamines are cyclohexyloxy hindered amines.

Claim 10 is aimed at where the brominated flame retardant is tris[3-bromo-2,2-bis(bromomethyl)propyl] phosphate. This is the brominated flame retardant taught in Examples 1 and 2 on page 56 of the disclosure.

Claim 11 is aimed at where the polyolefin resin is polypropylene, polyethylene or propylene/ethylene copolymer.

Claim 15 is aimed at where components (i) and (ii) are in a more specific ratio.

Claim 18 further requires the presence of melamine based flame retardants. Melamine based flame retardants are taught on page 55 of the disclosure.

Claim 19 is focused on where the composition contains little or no filler. This is discussed in the first three paragraphs of page 40 of the specification.

Claim 20 requires the further presence of an acid scavenger. This is taught on pages 53 and 54 of the specification.

Claim 21 further defines the acid scavenger of claim 20.

Claims 22 and 23 are aimed at where the acid scavenger of claim 20 is present at certain levels.

Claims 24 and 25 require the electrical part composition to be a plug, a socket or wire insulation.

(6) Grounds of Rejection to be Reviewed on Appeal

The grounds for rejection for review are:

Claims 1, 4, 5, 10, 11, 15 and 18-25 are rejected under 35 USC 103(a) as being unpatentable over Haley, et al., U.S. Pat. No. 5,393,812 in view of any secondary reference to Galbo, et al., U.S. Pat. Nos. 5,216,156, 6,271,377, 5,300,544 or 5,844,026; Behrens, et al., U.S. Pat. Nos. 5,124,378 or

5,112,890; Zedda, et al., U.S. Pat. No. 6,117,995; Cortolano, et al., U.S. Pat. No. 5,004,770 or Winter, et al., U.S. Pat. No. 5,204,473.

(7) Argument

Haley teaches the co-use of hindered alkoxyamine stabilizers and tris(halohydrocarbyl) phosphate or phosphonate ester flame retardants in polyolefin. Haley discloses a range of use of the halogenated hydrocarbyl phosphate ester from 0.5% and 15% (col. 12, lines 13-26). Also disclosed is a range of use of the hindered alkoxyamine from 0.01% to 3% (col. 12, lines 26-34). The closest working Examples of Haley to the present weight ratios of components are Examples 1 and 6, where there is a 1:5 and a 1:10 weight ratio of hindered alkoxyamine to organohalogen flame retardant respectively. Examples 2 and 5 teach a 3:2 weight ratio of hindered alkoxyamine to organohalogen flame retardant.

The one specific hindered alkoxyamine taught by Haley is TINUVIN 123, bis-(1-octyloxy-2,2,6,6-tetramethylpiperidin-4-yl) sebacate.

The present claims are focused on where the hindered alkoxyamine is methoxy, propoxy or cyclohexyloxy substituted hindered amine. The weight ratio of hindered amine to organohalogen flame retardant is from about 1:14 to about 1:50. The total weight of both components in the thermoplastic resin is from about 8% to about 17% by weight based on the resin.

Appellants point out a Rule 132 Declaration by Dr. Nikolas Kaprinidis, submitted with the Amendment filed September 28, 2005.

Surprisingly, the claimed limitations provide polymer compositions that meet the stringent V0 rating according to the UL-94 flammability test. The Kaprinidis Declaration shows that formulations of the present invention containing a hindered cycloalkoxy, methoxy or propoxy alkoxyamine moiety together with an organohalogen flame retardant surprisingly perform better than the same formulation containing TINUVIN 123.

These results are surprising and could not be arrived at from the Haley disclosure. As the present claims are aimed at formulations that provide a V0 UL-94 rating, two ratings better than that achievable with a formulation as taught by Haley, Appellents submit that this is an important teaching

to the public that cannot be arrived at from Haley, or from Haley in combination with the any secondary references.

Appellants submit that the Kaprinidis Declaration, providing data for each of a cyclohexyloxy-, a methoxy- and a propoxy-hindered amine in combination with tris[3-bromo-2,2-bis(bromomethyl)propyl] phosphate, fully supports the present claims.

Appellants submit that in light of the Kaprinidis Declaration and the above discussion, that the present rejections are addressed and are successfully rebutted.

Appellants submit that the rejections are in error and respectfully request that they be reversed.

Respectfully submitted,



Tyler A. Stevenson
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Attachments: Transmittal Letter
Appendices (8)-(10)

(8) Claims Appendix Claims on Appeal: 1, 4, 5, 10, 11, 15 and 18-25

1. (previously presented) A flame retardant polyolefin electrical part composition which comprises

(a) a polyolefin resin and

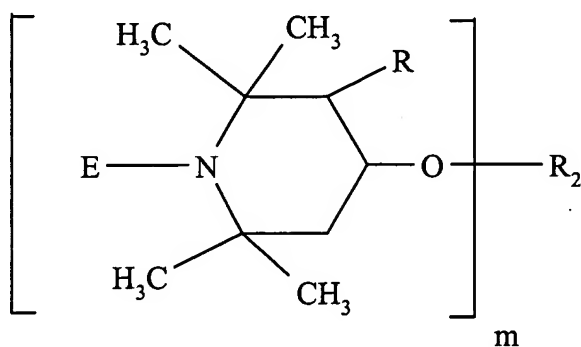
(b) an effective flame retarding amount of a synergistic mixture of

(i) at least one sterically hindered alkoxyamine stabilizer and

(ii) at least one brominated hydrocarbyl phosphate or phosphonate flame retardant,

where the weight ratio of component (i) to component (ii) is about 1:14 to about 1:50 and where the mixture of component (b) is present from about 8% to about 17% by weight based on the weight of component (a) and

where the alkoxyamines of component (i) are of the formula



where

E is -O-methyl, -O-propyl or -O-cyclohexyl

m is 1 to 4,

when m is 1,

R₂ is hydrogen, C₁-C₁₈alkyl or said alkyl optionally interrupted by one or more oxygen atoms, C₂-C₁₂alkenyl, C₆-C₁₀aryl, C₇-C₁₈aralkyl, glycidyl, a monovalent acyl radical of an aliphatic, cycloaliphatic or aromatic carboxylic acid, of a carbamic acid, of a cycloaliphatic carboxylic acid having 5-12 C atoms or of an aromatic carboxylic acid having 7-15 C atoms,

when m is 2,

R₂ is C₁-C₁₂alkylene, C₄-C₁₂alkenylene, xylylene, a divalent acyl radical of an aliphatic, cycloaliphatic, araliphatic or aromatic dicarboxylic acid or of a dicarbamic acid, of a cycloaliphatic or aromatic dicarboxylic acid having 8-14 C atoms, or of an aliphatic, cycloaliphatic or aromatic dicarbamic acid having 8-14 C atoms;

when m is 3,

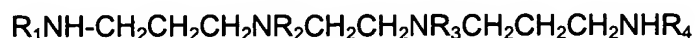
R₂ is a trivalent acyl radical of an aliphatic, unsaturated aliphatic, cycloaliphatic, or aromatic tricarboxylic acid; and

when m is 4,

R₂ is a tetravalent acyl radical of a saturated or unsaturated aliphatic or aromatic tetracarboxylic acid,

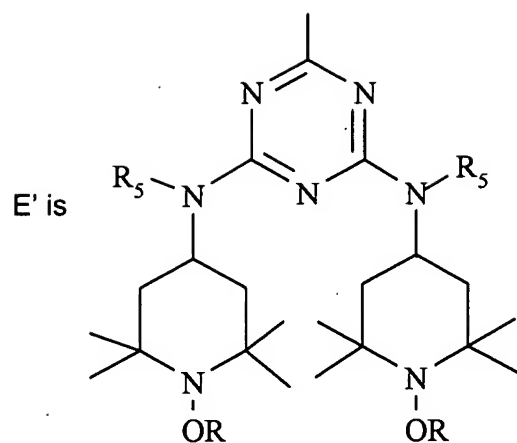
or

where the alkoxyamines are of the formula



where

R₁ and R₂ are the s-triazine moiety E'; and one of R₃ and R₄ is the s-triazine moiety E' with the other of R₃ or R₄ being hydrogen,



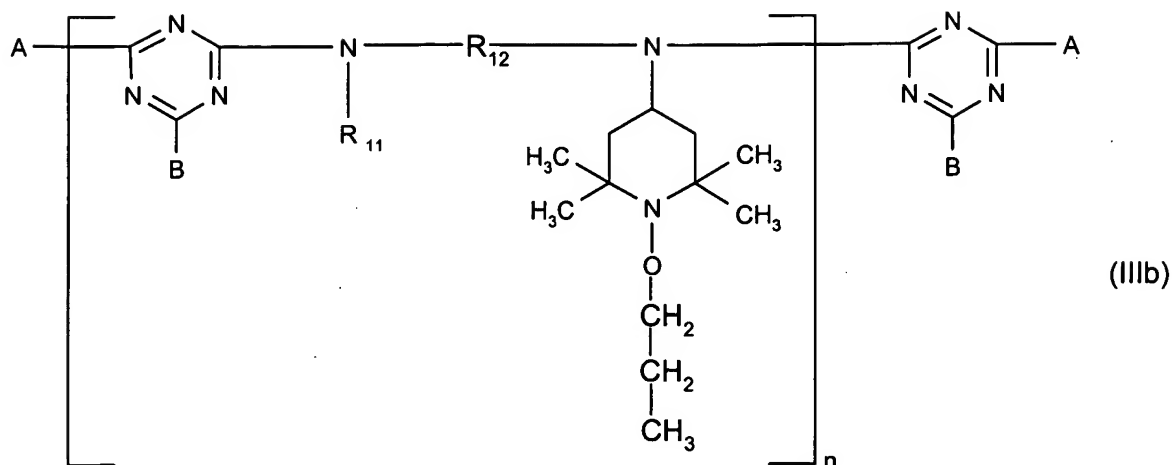
R is methyl, propyl or cyclohexyl,

R₅ is alkyl of 1 to 12 carbon atoms,

which compound is prepared by reacting two to four equivalents of 2,4-bis[(1-hydrocarbyloxy-2,2,6,6-tetramethylpiperidin-4-yl)butylamino]-6-chloro-s-triazine with one equivalent of N,N'-bis(3-aminopropyl)ethylenediamine;

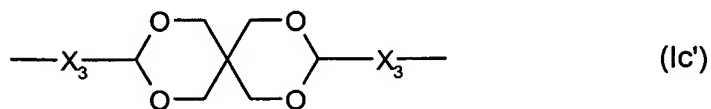
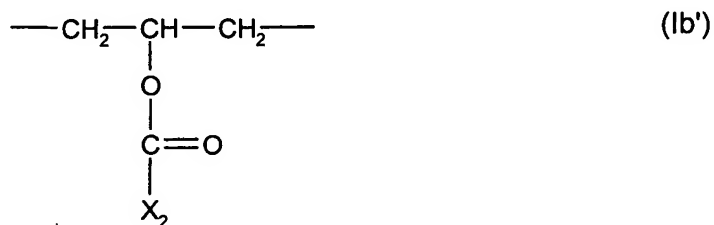
or

where the alkoxyamines are of the formula IIIb



in which the index n ranges from 1 to 15;

R_{12} is C_2 - C_{12} alkylene, C_4 - C_{12} alkenylene, C_5 - C_7 cycloalkylene, C_5 - C_7 cycloalkylene-di(C_1 - C_4 alkylene), C_1 - C_4 alkylenedi(C_5 - C_7 cycloalkylene), phenylenedi(C_1 - C_4 alkylene) or C_4 - C_{12} alkylene interrupted by 1,4-piperazinediyl, -O- or $>N-X_1$ with X_1 being C_1 - C_{12} acyl or (C_1 - C_{12} alkoxy)carbonyl or having one of the definitions of R_{14} given below except hydrogen; or R_{12} is a group of the formula (Ib') or (Ic');



X_2 being C_1 - C_{18} alkyl, C_5 - C_{12} cycloalkyl which is unsubstituted or substituted by 1, 2 or 3 C_1 - C_4 alkyl; phenyl which is unsubstituted or substituted by 1, 2 or 3 C_1 - C_4 alkyl or

C₁-C₄alkoxy; C₇-C₉phenylalkyl which is unsubstituted or substituted on the phenyl by 1, 2 or 3 C₁-C₄alkyl; and

the radicals X₃ being independently of one another C₂-C₁₂alkylene;

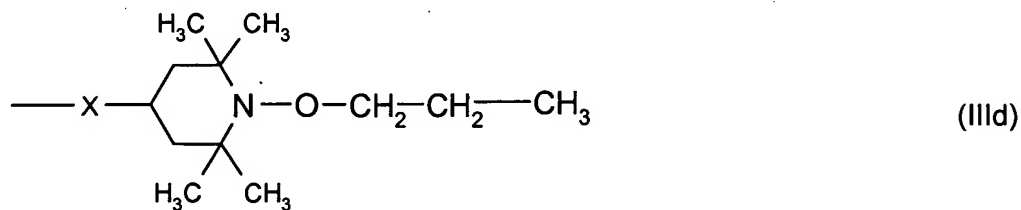
R₁₃, R₁₄ and R₁₅, which are identical or different, are hydrogen, C₁-C₁₈alkyl, C₅-C₁₂cycloalkyl which is unsubstituted or substituted by 1, 2 or 3 C₁-C₄alkyl; C₃-C₁₈alkenyl, phenyl which is unsubstituted or substituted by 1, 2 or 3 C₁-C₄alkyl or C₁-C₄alkoxy; C₇-C₉phenylalkyl which is unsubstituted or substituted on the phenyl by 1, 2 or 3 C₁-C₄alkyl; tetrahydrofurfuryl or C₂-C₄alkyl which is substituted in the 2, 3 or 4 position by -OH, C₁-C₈alkoxy, di(C₁-C₄alkyl)amino or a group of the formula (Ie');



with Y being -O-, -CH₂-, -CH₂CH₂- or >N-CH₃,

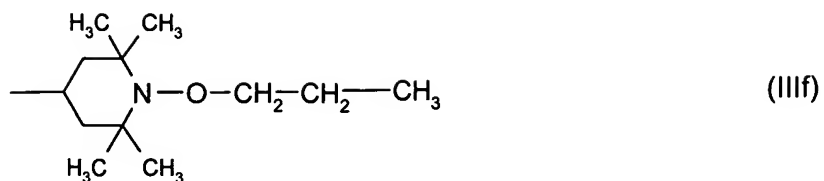
or -N(R₁₄)(R₁₅) is additionally a group of the formula (Ie');

the radicals A are independently of one another -OR₁₃, -N(R₁₄)(R₁₅) or a group of the formula (IIIId);



X is -O- or >N-R₁₆;

R₁₆ is hydrogen, C₁-C₁₈alkyl, C₃-C₁₈alkenyl, C₅-C₁₂cycloalkyl which is unsubstituted or substituted by 1, 2 or 3 C₁-C₄alkyl; C₇-C₉phenylalkyl which is unsubstituted or substituted on the phenyl by 1, 2 or 3 C₁-C₄alkyl; tetrahydrofurfuryl, a group of the formula (IIIf),



or C₂-C₄alkyl which is substituted in the 2, 3 or 4 position by -OH, C₁-C₈alkoxy, di(C₁-C₄alkyl)amino or a group of the formula (Ie');

R₁₁ has one of the definitions given for R₁₆; and

the radicals B have independently of one another one of the definitions given for A.

2. (canceled)

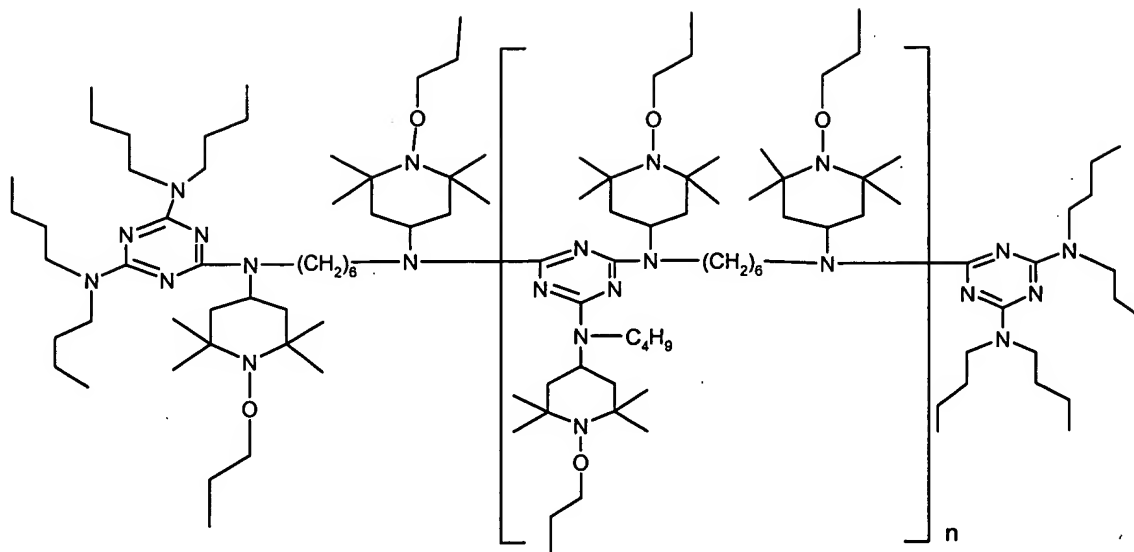
3. (canceled)

4. (previously presented) A composition according to claim 1 where the alkoxyamines are selected from the group consisting of

bis(1-cyclohexyloxy-2,2,6,6-tetramethylpiperidin-4-yl) adipate;

the reaction product of 2,4-bis[(1-cyclohexyloxy-2,2,6,6-tetramethylpiperidin-4-yl)butylamino]-6-chloro-s-triazine with N,N'-bis(3-aminopropyl)ethylenediamine) [CAS Reg. No. 191680-81-6]; and

the compound of formula



in which n is from 1 to 15.

5. (previously presented) A composition according to claim 1 where E is cyclohexyloxy.

6-9. (canceled)

10. (previously presented) A composition according to claim 1 where the brominated hydrocarbyl phosphate or phosphonate flame retardant is tris[3-bromo-2,2-bis(bromomethyl)propyl] phosphate.

11. (previously presented) A composition according to claim 1 where the polyolefin resin is polypropylene, polyethylene or propylene/ethylene copolymer.

12-14. (canceled)

15. (original) A composition according to claim 1 where the weight ratio of component (i) to component (ii) is about 1:30 to about 1:50.

16. (canceled)

17. (canceled)

18. (original) A composition according to claim 1 further comprising melamine based flame retardants.

19. (original) A composition according to claim 1 containing no filler or a filler in an amount less than about 3% by weight based on the weight of component (a).

20. (original) A composition according to claim 1 which further comprises

(c) an acid scavenger.

21. (original) A composition according to claim 20 where the acid scavenger is selected from the group consisting of natural or synthetic hydrotalcites and amorphous basic aluminum magnesium carbonates.

22. (original) A composition according to claim 20 where the acid scavenger is present from about 0.1% to about 1.0% by weight, based on the weight of component (a).

23. (original) A composition according to claim 20 where the acid scavenger is present from about 0.2% to about 0.8% by weight, based on the weight of component (a).

24. (original) An electrical part composition according to claim **1** which is a plug, socket or wire insulation.

25. (original) An electrical part composition according to claim **20** which is a plug, socket or wire insulation.

26. (canceled)

(9) Evidence Appendix

A Rule 132 Declaration by Dr. Nikolas Kaprinidis is of record. The Kaprinidis Declaration was attached to the response filed September 28, 2005.

(10) Related Proceedings Appendix

To the knowledge of the undersigned, there are no related appeals or interferences, and thus, no related court or Board decisions.